

### **REMARKS**

Claims 9-14 and 20-33 stand finally rejected in the Office Action. Claims 21 and 25 are cancelled in this response, and claims 20 and 33 are amended. Upon entry of the amendments, claims 9-14, 20, 22-24, and 26-33 remain pending.

Support for the amendment to claim 20 is found in the specification as originally filed, for example in original claims 1, 2 and 7. The amendment to claim 33 is formal only. Applicant respectfully requests entry of the amendments.

### **REJECTIONS UNDER 35 U.S.C. §102**

Claims 20, 22 and 24 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kourtides et al., U. S. Patent No. 5,296,288 (the Kourtides reference). Applicant respectfully traverses the rejection as applied to the amended claims and requests consideration.

Applicant has amended claim 20 to recite that the solids comprise a binding agent, cordierite, and at least one boron-containing compound. The Kourtides reference does not disclose slurries containing cordierite. Because the amended claim contains a limitation not found in the reference, Applicant respectfully submits that claim 20 is patentable over the reference. Furthermore, rejected claims 22 and 24 depend from patentable claim 20. Accordingly, Applicant respectfully requests that the rejection be withdrawn.

### **CLAIM REJECTIONS UNDER 35 U.S.C. §103**

Claims 9-14, 20-22, 24, and 26-33 stand rejected as obvious over DiChiara, Jr. et al., U.S. Patent No. 5,702,761 (the DiChiara reference) in view of the Kourtides reference. The Examiner cites the Kourtides reference for the proposition that emissivity agents such as  $\text{MoSi}_2$ ,  $\text{SiC}$ ,  $\text{SiB}_6$ , and  $\text{SiB}_4$  are interchangeable in protective coatings for tiles. Since the DiChiara reference teaches the presence of an emissivity agent such as  $\text{MoSi}_2$  in a tile protective coating composition, the Examiner takes the position it would have been obvious to substitute the boron-containing  $\text{SiB}_6$  and  $\text{SiB}_4$  taught as equivalent by the Kourtides reference. Applicant respectfully traverses the rejection and requests reconsideration.

For a rejection of claims over two references under §103, the references when combined must disclose each and every limitation of the claims. Furthermore, there must be a motivation outside the references themselves to combine the two to come up with the subject

matter of the claims. For there to be motivation to combine, there must be an expectation of success were the combination to be made.

A person of skill in the art would not have been motivated to combine the DiChiara reference with the Kourtides reference, because the two references teach different methods for protecting tiles. The slurry of the DiChiara reference is impregnated into the pores of the tile and there is no separately identifiable surface layer. See Figure 1 and the Abstract. The tiles of the DiChiara reference are stable to 2000 F. See column 7, lines 6-10. On the other hand, protective coatings of the Kourtides reference are applied as a surface layer on top of the tile. At column 8, line 13, the Kourtides reference states "The surface thickness of the dry coating is preferably from 0.08 to 0.012 mm". In addition, Figure 3 of the Kourtides reference shows the protective layer 12 functioning as an adhesive layer for a foil layer 11. Because the surface coatings taught in the two references are different, a person of skill in the art would not have considered that their teachings could be combined. For these reasons, Applicant respectfully submits that a prima facie case of obviousness is not made out in view of the two references, and respectfully requests that the rejection be withdrawn.

Furthermore, a person of skill in the art would not have an expectation of success were the suggested substitution to be made. As stated by the Examiner, the Kourtides reference discloses that the emissivity agents  $\text{MoSi}_2$ ,  $\text{SiC}$ ,  $\text{SiB}_6$ , and  $\text{SiB}_4$  are equivalent in its tile protecting compositions. One of skill in the art desiring to improve the DiChiara reference composition (which contains  $\text{MoSi}_2$ ) would, in view of the Kourtides reference, not expect improvement from substituting  $\text{SiC}$ ,  $\text{SiB}_6$ , or  $\text{SiB}_4$  for  $\text{MoSi}_2$ , since the Kourtides reference teaches they are all equivalent to  $\text{MoSi}_2$ . That is, the person of skill in the art would not have expected that substituting boron-containing species nominally indicated as equivalent as emissivity agents in the Kourtides reference would lead to improved heat resistance in tiles coated with compositions such as disclosed in the DiChiara reference. Accordingly, one of skill in the art would not have been motivated to make the combination. For this further reason, Applicant believe a prima facie case is not made out and respectfully requests the rejection be withdrawn.

The proper inquiry under §103 is whether the invention as a whole would have been obvious to one of skill in the art. The invention as a whole includes limitations specifically recited in the claims, and properties and advantages inherent in the invention and disclosed in the

application. *In re Antonie*. The invention as a whole includes the purpose of improving the compositions and methods of the DiChiara reference, as indicated in the current specification at paragraphs 9 and 14. Specifically, Applicant desired to find compositions that would protect tiles to higher temperatures than the 2000 F taught in the DiChiara reference. Thus, Applicant was seeking an improvement in a method of impregnating a slurry into the pores of a tile as taught in the DiChiara reference.

In light of the differences between the DiChiara reference and the Kourtides reference, Applicant respectfully submits that the invention as a whole would not have been obvious to one of skill in the art in light of the disclosures of the two references. The coating method taught in the Kourtides reference is different from that of the DiChiara reference, and the Kourtides reference suggests at most that certain boron-containing compounds are equivalent as emissivity agents in tile protecting compositions applied by the methods described in the Kourtides reference.

As discussed above, the Kourtides reference makes no disclosure at all of methods comprising impregnating a slurry into the pores of a tile to be protected. Although the tiles of the Kourtides reference are stable to a higher temperature than those of the DiChiara reference, it would not occur to one of skill in the art that the compositions and methods of the DiChiara reference could be improved by adding a boron-containing component as recited in the current claims. For this additional reason, Applicant respectfully requests that the rejections under §103 be withdrawn.

### CONCLUSIONS

For the reasons discussed above, Applicant believes that claims 9-14, 20, 22-24, and 26-33 as amended are patentable over the cited references, and respectfully requests an early notice of allowance. The Examiner is invited to telephone the undersigned if that would be helpful to resolving any issues.

Respectfully submitted,

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